Final Technical Report for the Project:
Waves and Currents in Shallow Water, N00014-96-1-G911

Steve Elgar
Washington State University

The objective of this research was to provide environmental information in a study intended to characterize the behavior of small, mobile objects (eg, mines) within the swash and inner surf zones. Field measurements were made during October 1996 at Torrey Pines Beach, California, a sandy beach exposed to the open ocean. The migration, scour, and burial of several types of mines was monitored under a range of environmental conditions (eg, waves, currents, beach slope). Waves and currents were measured with insitu pressure gages and electromagnetic current meters. Wave conditions were variable, and included low amplitude, long period swell and moderate amplitude, high frequency seas generated by local winds. The results can be used to guide the development of mine burial models required by the operational Navy.

The data have been processed, including quality control, calculation of 3-hr mean values, estimation of power spectra, and estimation of wave directions. All raw data and data products have been transferred to NRL (Dr. T. Holland).

ONR-Sponsored Publications

P = published
IP = in press
PS = paper submitted
IC = invited conference paper
C = contributed conference paper
R = technical report

P- Elgar, Steve, T.H.C. Herbers, R.T. Guza, 1997 Nearshore Observations of Nonlinear Ocean Surface Waves, Naval Research Reviews **48**, 41–52.

P- Raubenheimer, B., R.T. Guza, and Steve Elgar, 1996 Wave transformation in the inner surf zone, J. Geophysical Research **101**, 25,589–25,597.

P- Gallagher, Edith, Steve Elgar, and R.T. Guza, 1998 Observations of Sand Bar Evolution on a Natural Beach, J. Geophysical Research **103**, 3203–3215.

PS- Raubenheimer, B., R.T. Guza, and Steve Elgar, 1998 Tidal watertable fluctuations in a sandy ocean beach, Water Resources Research, sub judice.

Statistics
3 Papers published, refereed journals
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13. ABSTRACT *(Maximum 200 words)*

The objective of this research was to provide environmental information in a study intended to characterize the behavior of small, mobile objects (eg, mines) within the swash and inner surf zones. Field measurements were made during October 1996 at Torrey Pines Beach, California, a sandy beach exposed to the open ocean. The migration, scour, and burial of several types of mines was monitored under a range of environmental conditions (eg, waves, currents, beach slope). Waves and currents were measured with insitu pressure gages and electromagnetic current meters. Wave conditions were variable, and included low amplitude, long period swell and moderate amplitude, high frequency seas generated by local winds. The results can be used to guide the development of mine burial models required by the operational Navy.

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